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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Toshio Nozaki

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EXAMINER

METZMAIER, DANIEL S

ART UNIT

PAPER NUMBER

1796

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,589	<b>Applicant(s)</b> NOZAKI, TOSHIO	
	<b>Examiner</b> Daniel S. Metzmaier	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2009 & 12 November 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 2-10 are pending.

#### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 September 2009 has been entered.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 is now dependent on canceled claim 1. It is unclear what applicants' intended scope of said claim 6 is regarding the limitations of claim 6 dependent on canceled claim 1.

#### ***Claim Interpretation***

4. Claims 2-6 are directed to colloidal silica compositions. Claim 6 is further directed to a polishing abrasive particles comprising said colloidal silica compositions. Said compositions are drafted in product-by-process format. Attention is directed to MPEP § 2113 regarding the analysis of said claim form regarding patentability.

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Claims 7-10 are directed to processes for the manufacturing colloidal silica.

The colloidal silica in all the claims has been characterized as "having a cocoon shape". Applicants do not specifically define the meaning of the phrase "having a cocoon shape". Therefore, the phrase takes the plain meaning in the art. Examples of silica materials are listed including silica having use, " . . . in precision polishing of such electronic materials, Japanese Laid-open Patent Application Publication No. H7-221059 teaches a colloidal silica with a ratio of minor to major axis of 0.3 to 0.8 and a major axis of 7 to 1,000 nm." See Specification at page 3, paragraph beginning at line 11.

Another example is, " . . . described in Japanese Patent No. 3195569 that a cocoon-shaped colloidal silica is produced which has a minor axis of 10 to 200 nm and with a major/minor axis ratio of 1.4 - 2.2 . . .". See Specification at paragraph bridging pages 3 and 4.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. Claims 2-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakayama et al, US 6,652,612. See comparative example 3 and column 4, line 32, to column 6, line 6; particularly column 5, lines 64 et seq; and claims. The claims are drafted in product-by-process format and have not been shown to patentably distinguish over the prior art compositions for the breadth of claims 2-6. Attention is directed to MPEP § 2113.

7. Claims 2-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Nakayama et al, US 2003/0089045. See comparative example 3 and paragraph [0026]-[0040], particularly paragraph [0040]; and claims. The claims are drafted in product-by-process format and have not been shown to patentably distinguish over the prior art compositions for the breadth of claims 2-6. Attention is directed to MPEP § 2113.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-3 and 5-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Iso Mamoru, JP 11-060232, as evidenced by the machine translation of JP 11-060232. Iso Mamoru (abstract) discloses silica made by a different method than applicants. The use of alkoxysilane condensate rather than an alkoxysilane has not been shown to impart patentable

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distinction to the silica particles, which are otherwise disclosed as having a cocoon shape (paragraph [0001]).

To the extent the Iso Mamoru differs from the claims in the average degree of condensation, some variation in the properties of the materials would have been obvious for the advantages of employing the materials in the same utilities as polishing materials. To the extent the methods would impart a difference to the materials, said difference has not been shown to be a patentable difference.

The claims are drafted in product-by-process format and have not been shown to patentably distinguish over the prior art compositions for the breadth of claims 2-3 and 5-6.

10. Claims 2-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iso Mamoru, JP 11-060232, as evidenced by the machine translation of JP 11-060232, as applied to claims 2-3 and 5-6 above, and further in view of So et al, US 6,432,151 and Robey, US 2,524,358.

Iso Mamoru (abstract) discloses silica made by a different method than applicants. The use of alkoxysilane condensate rather than an alkoxysilane has not been shown to impart patentable distinction to the silica particles, which are otherwise disclosed as having a cocoon shape (paragraph [0001]).

To the extent Iso Mamoru differs from the claims in the explicit recitation of the average degree of condensation, said difference has not been shown to be an unobvious difference. It has long been known to form colloidal silica by employing alkoxysilane condensate, as is clearly shown in the Robey reference in a one-step

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process as a functional equivalent. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ alkoxysilane condensate shown to be well known in the colloidal silica art for the advantage of reduced hydrolysis time and reduced floc/precipitate formation.

To the extent Iso Mamoru differs from the method claims in the further hydrothermal treatment of the polishing materials, said treatment has not been shown to be an unobvious treatment and/or other than conventional in making said silica abrasives for use as polishing media.

So et al (abstract, column 4 et seq, and examples) discloses silica slurries and methods of making said slurries for wafer polishing. So et al discloses (column 8, lines 60 et seq) the hydrothermal treatment of silica polishing agents 1 to 2 hours in an autoclave to make said silica physically solid and advantageously improve their physical strength and polishing efficacy.

These references are combinable because they teach silica polishing agents and methods of making said polishing agents from alkoxysilanes. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to alkoxysilane condensate, as functional equivalent of the silica source materials followed by hydrothermal treatment of the silica polishing materials for the advantage of making them physically solid and improving their polishing efficacy. The particular temperature and pressures would have been within the level of one having ordinary skill in the art as a result effective variable.

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11. Claims 2-3 and 5-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rodel Nitta Corporation, EP 1 174 483 A1. Rodel Nitta Corporation (abstract, paragraph [0007] et seq, paragraph [0012] et seq, examples and claims) discloses cocoon-shaped silica polishing compositions.

Rodel Nitta Corporation makes the compositions different than the instantly claimed compositions without the hydrothermal treatment of said compositions. Since said materials are the same and the method of making the compositions are similar, the properties of the compositions recited in the claims would have been expected to have been the same or substantially the same. A compound or composition and all of its properties are generally inseparable. *In re Papsech*, 315 F2d. 381, 137 USPQ 43, (CCPA 1963).

To the extent the Rodel Nitta Corporation differs from the claims in the average degree of condensation, some variation in the properties of the materials would have been obvious for the advantages of employing the materials in the same utilities as polishing materials. To the extent the methods would impart a difference to the materials, said difference has not been shown to be a patentable difference.

The claims are drafted in product-by-process format and have not been shown to patentably distinguish over the prior art compositions for the breadth of claims 2-3 and 5-6.



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12. Claims 2-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodel Nitta Corporation, EP 1 174 483 A1, as applied to claims 2-6 above, and further in view of So et al, US 6,432,151 and Robey, US 2,524,358.

Rodel Nitta Corporation (abstract, paragraph [0007] et seq, paragraph [0012] et seq, examples and claims) discloses cocoon-shaped silica polishing compositions.

To the extent Rodel Nitta Corporation differs from the claims in the explicit recitation of the average degree of condensation, said difference has not been shown to be an unobvious difference. It has long been known to form colloidal silica by employing alkoxysilane condensate, as is clearly shown in the Robey reference in a one-step process as a functional equivalent. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ alkoxysilane condensate shown to be well known in the colloidal silica art for the advantage of reduced hydrolysis time and reduced floc/precipitate formation.

To the extent Rodel Nitta Corporation differs from the method claims in the further hydrothermal treatment of the polishing materials, said treatment has not been shown to be an unobvious treatment and/or other than conventional in making said silica abrasives for use as polishing media.

So et al (abstract, column 4 et seq, and examples) discloses silica slurries and methods of making said slurries for wafer polishing. So et al discloses (column 8, lines 60 et seq) the hydrothermal treatment of silica polishing agents 1 to 2 hours in an autoclave to make said silica physically solid and advantageously improve their physical strength and polishing efficacy.

These references are combinable because they teach silica polishing agents and methods of making said polishing agents from alkoxysilanes. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to alkoxysilane condensate, as functional equivalent of the silica source materials followed by hydrothermal treatment of the silica polishing materials for the advantage of making them physically solid and improving their polishing efficacy. The particular temperature and pressures would have been within the level of one having ordinary skill in the art as a result effective variable.

### ***Response to Arguments***

13. Applicant's arguments filed 29 September 2009 have been fully considered but they are not persuasive.

14. Applicants (pages 4 and 5) assert the Nakayama et al references disclose raw materials comprising alkoxysilanes rather than the claimed alkoxysilane **condensates**. This has not been deemed persuasive because the silica source materials have not been shown to impart a difference to the claimed colloidal silica.

15. Applicants (pages 5 and 6) direct attention to the comparative data set forth in the original specification as evident that the use of the alkoxysilane **condensates** produces a different colloidal silica. This has not been deemed persuasive since because a showing of unexpected results must compare the closest prior art, the evidence must be unexpected and be commensurate in scope with the claimed invention. The instant facts it is unclear that the results compare the closest prior art and show unexpected results that are commensurate in scope with the claimed invention.

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16. Applicants' (page 6) assertion that heating under pressure results in improved alkali resistance. This has not been deemed persuasive since So et al teaches hydrothermal treatment of the silica polishing materials for the advantage of making them physically solid and improving their polishing efficacy. Therefore, said difference cannot be said to be unexpected.

17. Applicants (pages 7 and 8) assert a similar argument for the Rodel Nitta Corporation reference as presented for the Nakayama et al references, *i.e.*, disclose raw materials comprising alkoxysilanes rather than the claimed alkoxysilane **condensates**. This has not been deemed persuasive because the silica source material has not been shown to impart a different to the claimed colloidal silica.

Attention is directed to MPEP 2113 and 716.02.

### **Conclusion**

18. Monroe, US 5,728,184, was cited of interest to the instant claims in the last Office Action. Monroe discloses hydrothermal treatment of abrasive particle dispersions (at least column 9, lines 37-49) at temperatures of 150 to 200° C and elevated pressures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Daniel S. Metzmaier/  
Primary Examiner, Art Unit 1796**

DSM